

STREAM BIOASSESSMENTS: ARGUMENTS FOR INCLUSION INTO THE LCTA MISSION

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QUESTIONS

- ◆ **Are streams important in training site landscapes?**
- ◆ **Does current LCTA methodology provide for stream bioassessment?**
- ◆ **Does ITAM/LCTA philosophy allow stream bioassessment?**
- ◆ **WHY SHOULD ARMY/ITAM BE INTERESTED?**

1. Are streams important in training site landscapes?

Streams and other natural water bodies:

- are important indicators of environmental wellness;**
 - can be exporters of problems;**
 - and, may extend stewardship to areas far downstream.**
- ✓ The Clean Water Act makes them part of training site landscape.**

2. Does current LCTA methodology address stream bioassessment methodology ~~and analysis?~~

No.

The LCTA II Manual fails to provide for adequate sampling to either characterize onsite streams, or, to define problems associated with them.

Key Word Searches:

- ◆ **Macroinvertebrate**
- ◆ **Invertebrate**
- ◆ **Bioassessment**
- ◆ **Benthos**
- ◆ **Insects**

- ◆ **Rapid bioassessment**
- ◆ **Aquatic biomonitoring**
- ◆ **Stream biology**
- ◆ **Periphyton**

3. Does Army, ITAM, and LCTA philosophies support stream bioassessment programs?

- ♦ **Yes.**
- ♦ I cannot find any statement or opinion expressed in AR350-4 – ITAM, the ITAM Procedural Manual, or the LCTA II Technical Reference Manual that would prevent inclusion of stream bioassessment in the LCTA mission.

4. Why should the military incorporate this methodology into its environmental programs?

- ◆ “Downstream stewardship” translates to “downstream liability.”
- ◆ c.f. groundwater problems at Massachusetts Military Reservation (MMR) ⁴ and Camp Bullis in Texas⁵
- ◆ Mississippi lawsuits:

The devil is in the details...



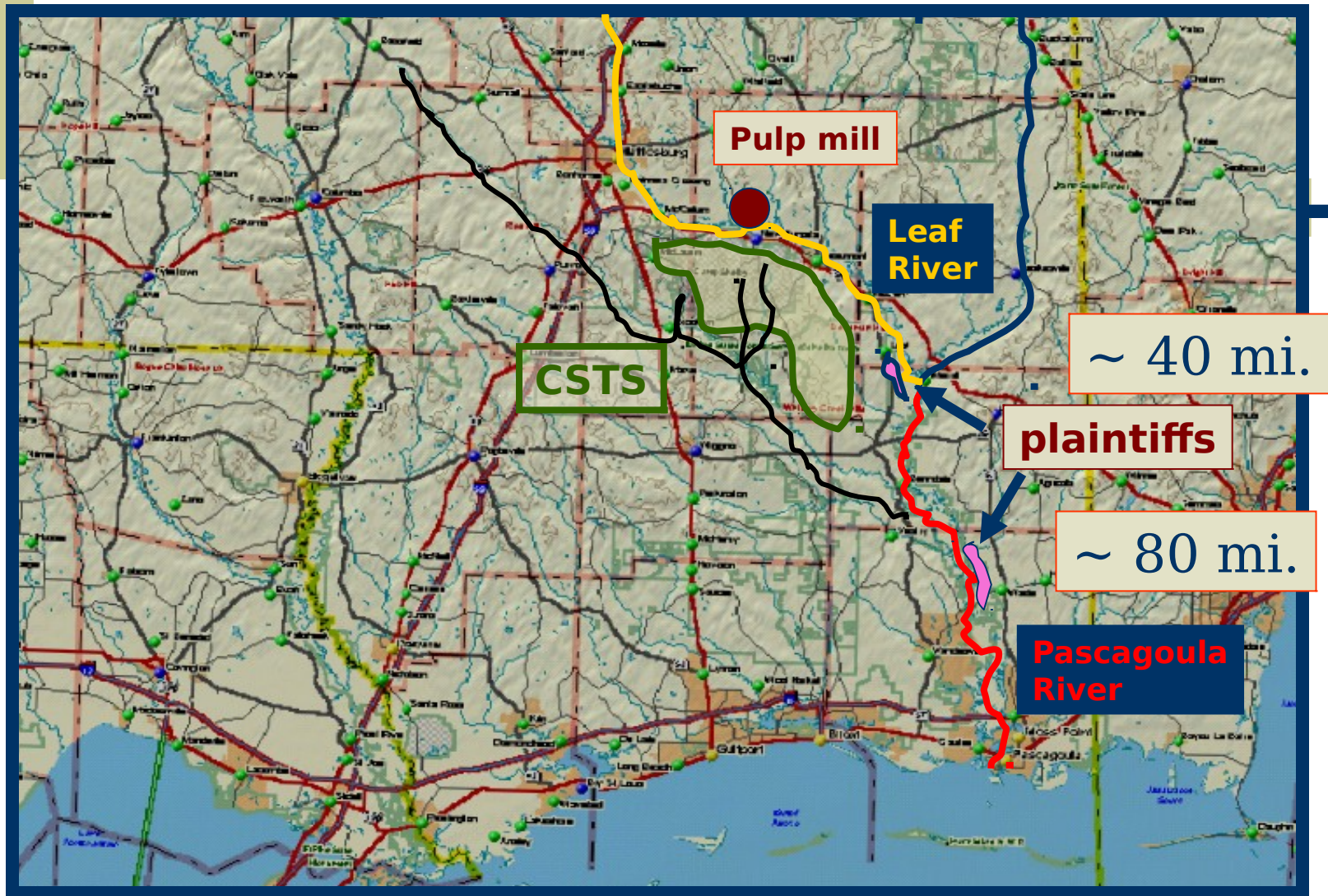
Recent lawsuits in Mississippi

Mississippi Dioxin lawsuits

**(156 lawsuits vs. Georgia
Pacific)**

Chicken Processors lawsuits

(EPA vs. Central Industries)



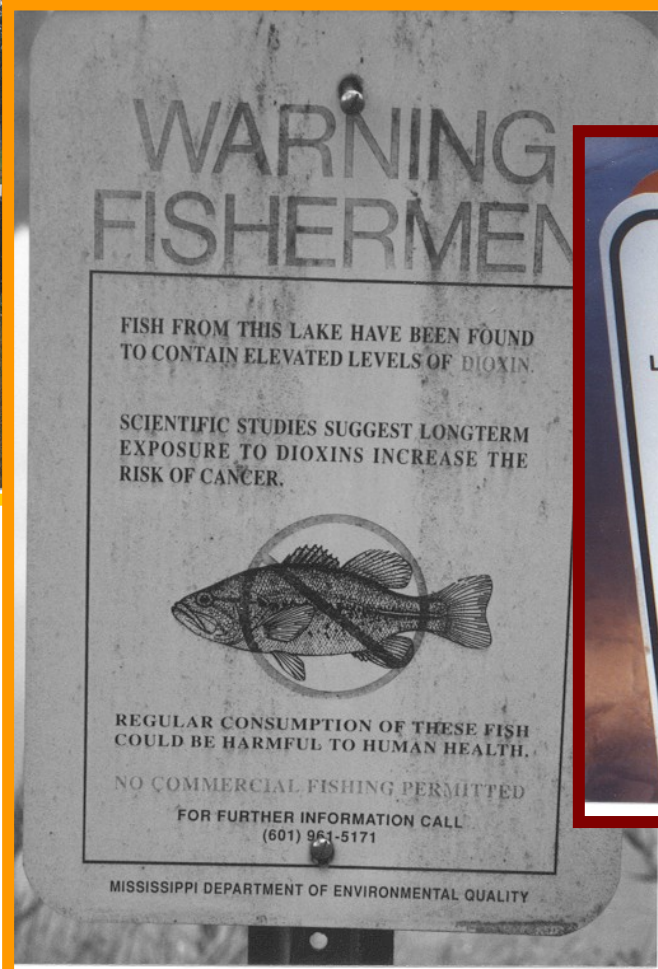
Map of Pascagoula River Basin

MISSISSIPPI DIOXIN LAWSUITS

(156 lawsuits vs. Georgia Pacific)

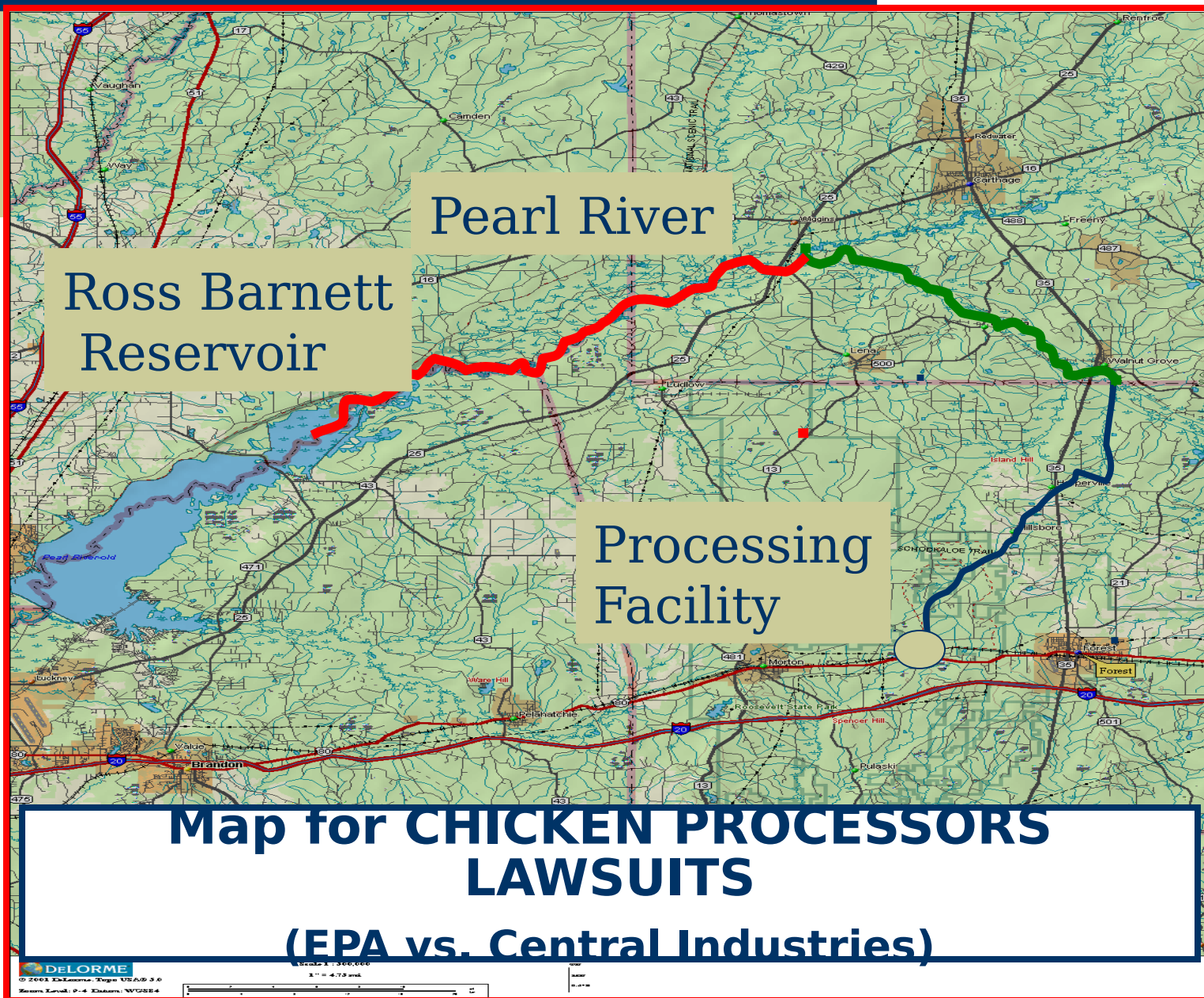
- ◆ **Modern pulp mill/1985/bleach-kraft**
- ◆ **Dioxins as bi-product**
- ◆ **Technology (detection limits) changed from 10^{-9} to 10^{-15} .**
- ◆ **EPA found this mill to be hottest of 104 mills surveyed (body burden in catfish.)**
- ◆ **MDEQ put up dioxin warning signs.**
- ◆ **Local lawyer saw a potential “gold mine.”**

Photos of dioxin warning signs



(Dioxin law suits cont.)

- ◆ **155 lawsuits (4500 plaintiffs); most from 50 - 80 miles downstream**
- ◆ **G-P lost 2 won 1 in state court system; millions in settlements due.**
- ◆ **G-P begin scientific studies on sources of dioxin contamination.**
- ◆ **G-P appealed and won at MS Supreme Court.**



CHICKEN PROCESSORS LAWSUITS (EPA vs. Central Industries)

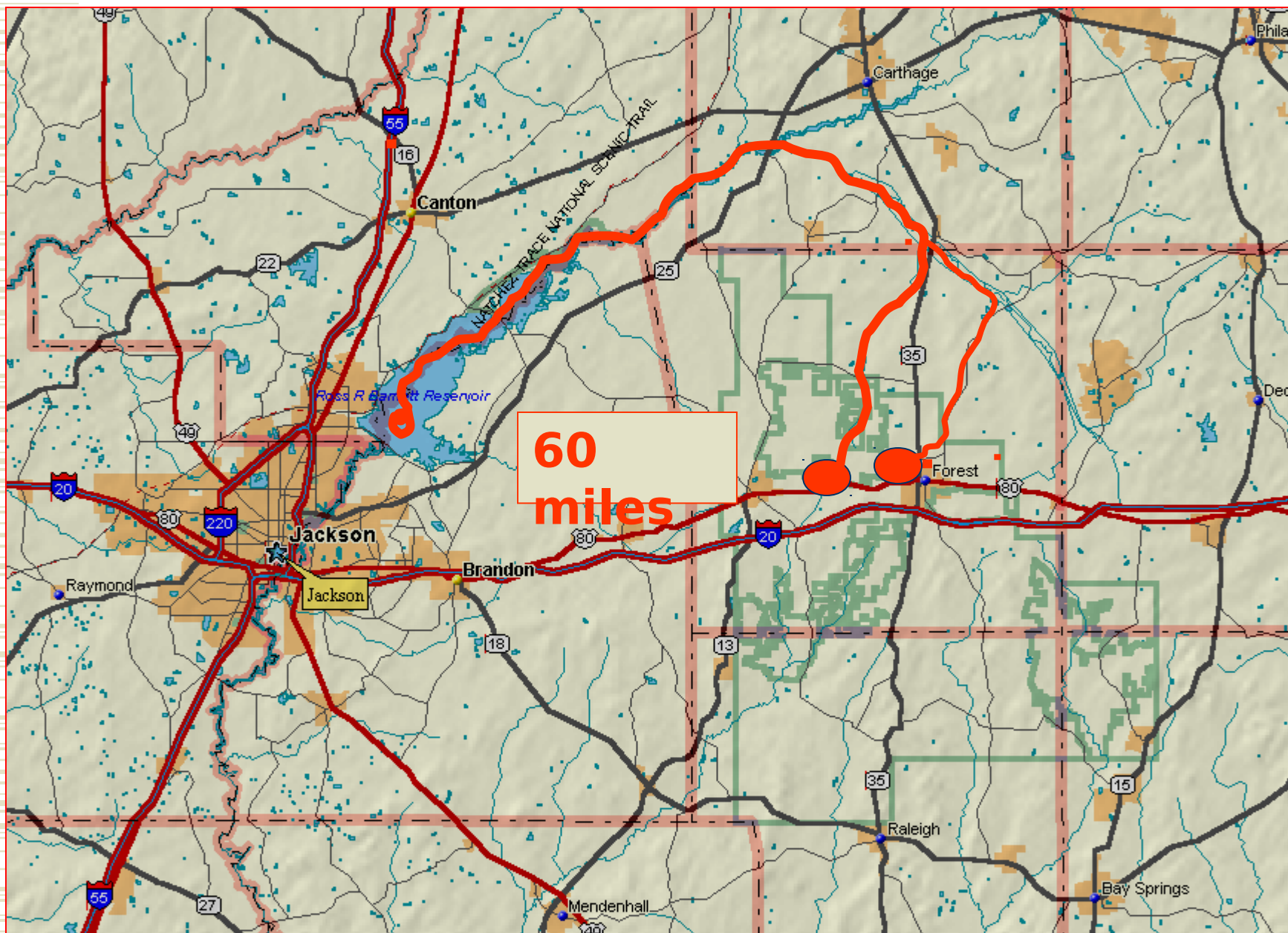
- ◆ **chicken processors in the central part of Mississippi**
- ◆ **Wastewater effluents are discharged into headwater streams or are directed to the local POTW.**
- ◆ **Facilities were all meeting their NPDES permits.**
- ◆ **1996, major spill (?) at Central Industries facility**

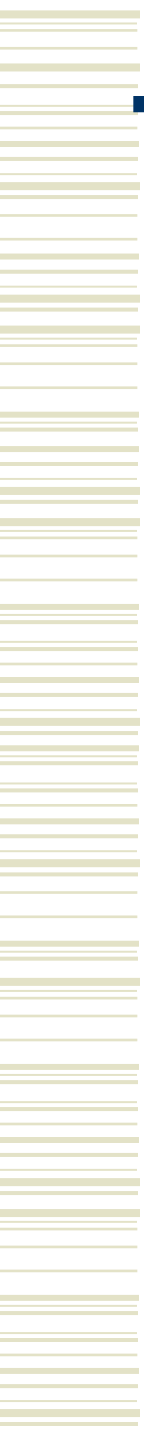


(Chicken processors cont.)

- **EPA filed a series of lawsuits in the Southern District Federal Court,**
- **pursued and secured 71 indictments for violations of the Clean Water Act.**
- **Court levied 14 million dollars in fines....plus,**
- **26 felony charges against CEOs.**

(The Pearl River feeds the Lake Ross Barnett Reservoir, which is the **public water supply for the city of Jackson, Mississippi and is more than **60 miles downstream.**)**





SOME NOTABLE SIMILARITIES

- 
- ◆ **Both deal with surface water.**
 - ◆ **Both included perception that public is being harmed.**
 - ◆ **Both impact public use of water.**
 - ◆ **Impact far downstream from source of contamination**

SOME NOTABLE CAVEATS

- ◆ **Responsibility rests with originator.**
- ◆ **Plaintiff can be federal government (federal court) or private (federal or state court.)**
- ◆ **Lack of data is a plus for plaintiff.**
- ◆ **Guilt is not divided among defendants.**
- ◆ **Regulatory thresholds can change without notice.**

Notable Caveats...cont.

- ◆ **Technology can change and thereby change the way the regulatory agency looks at thresholds.**
- ◆ **Apparent (?) compliance with NPDES permit is no insurance against problems of enormous magnitudes.**
- ◆ **Cancer claims by plaintiff can extend jeopardy through time and space.**

RECOMMENDATIONS

- **Make stream bioassessment part of LCTA (or some other appropriate program.)**
- **Secure and maintain database on the ecological health of on-site streams.**
- **Start with existing technology/ methodology from USEPA.**

(MS Military includes stream bioassessment in its routine, environmental assessment programs. The program is successful and cost effective.)

Why “bioassessment” rather than simple water quality?

- ♦ **Stream biota tend to reflect past as well as current water quality. The community in place is testimony to past conditions.**
- ♦ **Macroinvertebrate communities are good indicators of habitat health because they tend not to move much.**
- ♦ **Water chemistry can be very expensive.**



SUMMARY

- ◆ **Streams are a natural part of the training site landscape.**
- ◆ **Responsibility for stream health extends offsite.**
- ◆ **Legal and technical environments can change quickly.**
- ◆ **Legal challenges are real and inevitable.**
- ◆ **Aquatic bioassessment methodologies are available as “standard methods” and are validated by EPA.**



Summary (cont.)

- ◆ **Results can speak to immediate training site or public concerns.**
- ◆ **Historical data bases are created for future defense needs.**
- ◆ **ITAM/LCTA Philosophy allows for stream bioassessment program.**

ARNG Category I Training Sites

Training Site	State	ITAM Category	Area (sq.mi)	Stream Type:	
				Principal	Perennial
CAMP SHELBY	MS	1	122.87	4	
FORT BRAGG	NC	1	206.83	2	23
FORT POLK	LA	1	165.37	5	11
FORT BENNING	GA	1	257.31	4	14
FORT STEWART	GA	1	438.37	7	4
FORT DRUM	NY	1	165.34	3	4
FORT CHAFFEE	AR	1	113.42	3	3
YUMA PG	AZ	1	1309.83	7	
FORT CARSON	CO	1	204.82	1	6
WHITE SANDS MF	NM	1	3331.96	4	2
FORT BLISS	TX	1	1757.78	3	
FORT HOOD	TX	1	330.3	2	7
FORT PICKETT	VA	1	61.11	2	7
FORT IRWIN	CA	1	995.84		
FORT SILL	OK	1	148.22	5	10
YAKIMA TC	WA	1	420.13	3	4
				~ 4	>
	Mean		626.84	3.75	7.46

**ON
E**

**more comment...then
I'll quit**

The Army can do what it pleases.

**Thanks for your attention....
Questions?**



**Go
Eagles!**